

REMARKS

Claims 1 and 5 have been amended. No claims have been canceled. No new claims have been added. Claims 1-2, 4-5, and 7-8 are pending.

Claim 1-2, 4-5, and 7-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Matsushita (European Patent Application No. 0 307 509 B1) in view of Saito (U.S. Patent No. 6,080,263). This rejection is respectfully traversed.

Claim 1 recites, *inter alia*, “a sensor comprising a detector for detecting if the portion of the protective tape on a wafer is properly removed by said cutting element, said detector being positioned relative to said protective tape to perform the detecting” and “a means for initiating corrective action to stop the transport mechanism from moving the wafer to the grinding apparatus when the sensor detects that the protective tape is not properly removed from a wafer by said cutting element.”

Matsushita discloses an apparatus for cutting tape around a wafer and preventing the wafer itself from being cut. Matsushita's apparatus includes a sensor 90 and a sensor 110. The sensor 90 is a photoelectric detector used for detecting the peripheral edge of a wafer 3. Column 8, lines 25-28. The sensor 110 is used to sense deviation of the cutter 105 from its intended path. Column 8, lines 47-50. Thus, the Office Action is correct that Matsushita fails to disclose or suggest the “sensor” (for detecting whether tape has been properly removed) and the “means for initiating corrective action” recited in the above quoted portions of claim 1.

Saito discloses an apparatus for applying a protective film to a wafer and then cutting the protective film to match the shape of a wafer. Column 1, lines 6-11. The Office Action states at page 3 that Saito is being cited for the proposition that “tape burrs formed during the tape cutting step ultimate destroy the wafer during the back

grinding step.” As the Office Action does not specifically cite to any portion of Saito, it is presumed that the Office Action is referring the below quoted portion:

When a cut remnant exists at this angular portion, such cut remnant can be pulled into the grinding apparatus during the backgrinding process and if this occurs the entire semiconductor wafer can be destroyed.

Saito, at column 1, lines 57-60.

The Office Action then concludes that it would have been obvious to “made use of the sensor of EP ‘509 to check to see if a tape burr was formed on the wafer and for causing the control to prevent the wafer from being transported to the back grinding device if a burr is detected.”

It is respectfully submitted that such a conclusion is in error and is based on impermissible hindsight. Matsushita, as noted above, in fact does not teach a sensor, rather Matsushita discloses two sensors, namely 90 and 110, with sensor 90 being used to detect the wafer’s edge, and sensor 110 being used to detect the position of the cutter. Neither of these sensors senses if a portion of a protective tape is properly removed. Although both the wafer and the cutting element must be properly positioned to remove tape bur, these conditions are not sufficient to guarantee that tape bur is removed. Any number of conditions can result in a failure to remove tape bur despite proper positioning. For example, a defective cutting element, or a defective tape which is sufficiently thick to be resistant to cutting may result in a failure to remove tape bur even if the wafer and cutter were properly positioned. There is no support for the Office Action’s conclusion that either of Matsushita’s sensors 90 or sensor 110 are capable of sensing whether tape bur was properly removed during the cutting operation. The only teaching or suggestion regarding a sensor for sensing whether tape bur has been properly removed by a cutting element comes from applicant’s disclosure.

Additionally, claim 1 has been amended to further recite that the sensor comprises “a detector for detecting if the portion of the protective tape on a wafer is properly removed by said cutting element” and the detector is required to be “positioned relative to said protective tape to perform the detecting.” The sensors of Matsushita are positioned to detect the position of the wafer and cutting element and are therefore not positioned relative to the protective tape.

The conclusion of obviousness stated in the Office Action appears to be based upon impermissible hindsight. Accordingly, the rejection under 35 U.S.C. § 103(a) to claims 1-2, 4-5, and 7-8 should be withdrawn.

Application No.: 09/805,111

Docket No.: M4065.0394/P394

Dated: March 2, 2005

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